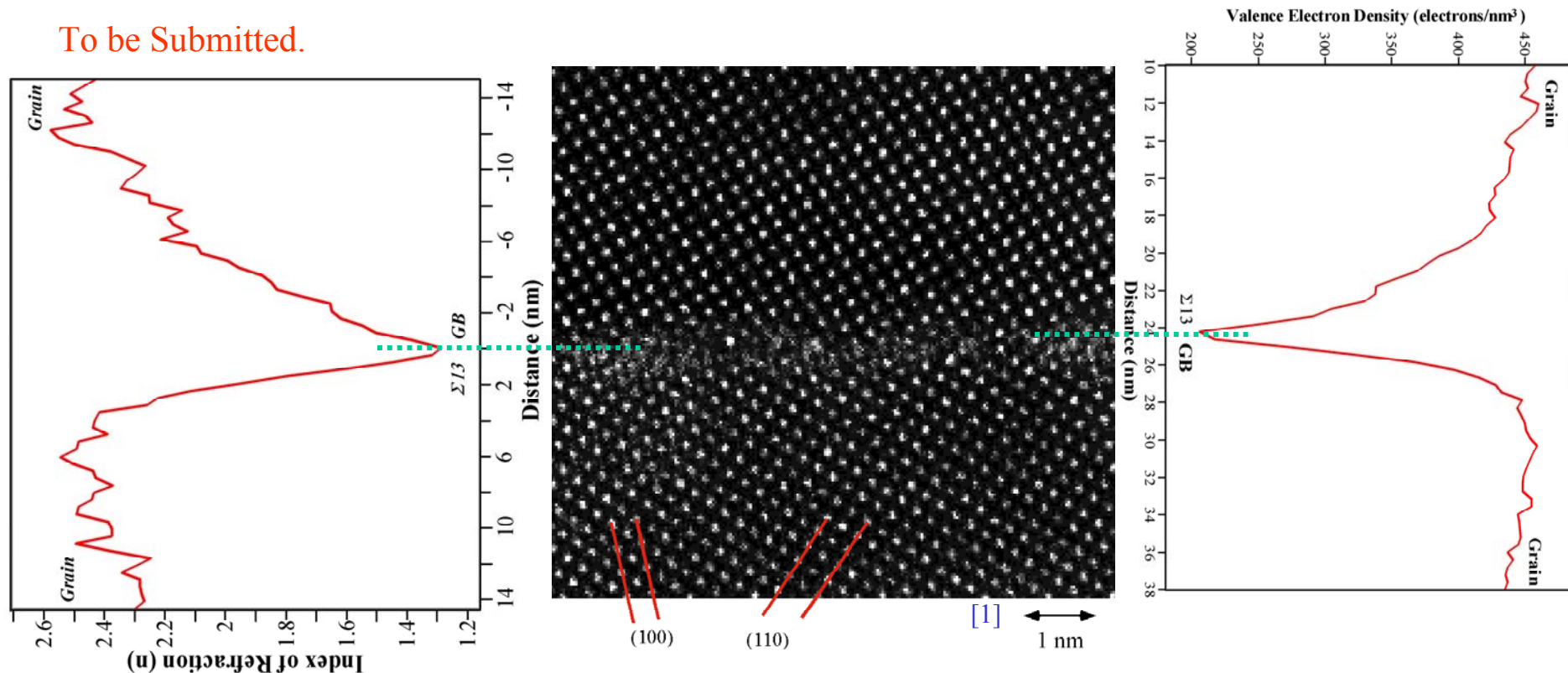


# Nanometer Scale Induced Structure Between Amorphous Layers and Crystalline materials: SrTiO<sub>3</sub> Ceramics

Dawn Bonnell, Roger French, University of Pennsylvania, DMR-0010062\*

By applying valence EELS spectroscopy, the determination of local optical properties becomes possible in a quantitative manner. We observed strong property gradients, in the Index of Refraction, reduced physical densities, and strong depletion in the valence electron densities, across near  $\Sigma 13$  grain boundaries in Fe-doped SrTiO<sub>3</sub>.

To be Submitted.



[1] O. Kienzle, Doctoral Thesis, University of Stuttgart (1999).

\* In cooperation with European Union under contract G5RD-CD-2001-00586

# Nanometer Scale Induced Structure Between Amorphous Layers and Crystalline materials: SrTiO<sub>3</sub> Ceramics

Dawn Bonnell, Roger French, University of Pennsylvania, DMR-0010062\*

## Education & Outreach:

Dr. Guolong Tan presented this work in a poster titled as “Optical properties & Electronic structure: London Dispersion Forces and intergranular Films In Ceramics” in the SENS center’s Nanotechnology Day. He introduced this work to a broad range people, from undergraduate students interested in the new Nanotechnology course, being offered by Prof. Karen I. Winey to students interested in the new Nanotechnology minor in the Engineering School. He even discussed the application of this work with Wharton MBA student interested in the business opportunities in Nanotechnology.

The SENS (Science and Engineering of Nanoscale Systems) Center hosted A campus wide Nanotechnology day At UPENN on October 21<sup>st</sup>, 2003.

**Penn Nanotechnology Day - October 21<sup>st</sup>**  
**Towne Building 1<sup>st</sup> Floor 9am – 6pm**  
**Refreshments**



Human Chromosome



Micro Machines



Single Atom Manipulation

**Nanotechnology Revolutionizing the Future**

- Multimedia Presentations
- Nanotechnology in Daily Life
- Nanotechnology in IT
- Nanotechnology in Computation
- BioNanotechnology
- Introducing the Nanotech Era

**Nanotechnology at Penn**

- Exciting Research Displays
- Nanotechnology Courses
- Minor in Nanotechnology
- Undergraduate Research Opportunities
- Penn Professional Nanotech Group (PNPG)

Target your future in the NANOSCALE dimension



Center for Science and Engineering Nanoscale Systems

Professors and students will answer questions about science, engineering, curricula, research, career options, and anything you want to know about nanotechnology 12-1:30PM and 4-5:30PM in Towne Raiser Lounge.